Stories in Science

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stories in science

POSTDOCTORAL CAREER PATHWAYS

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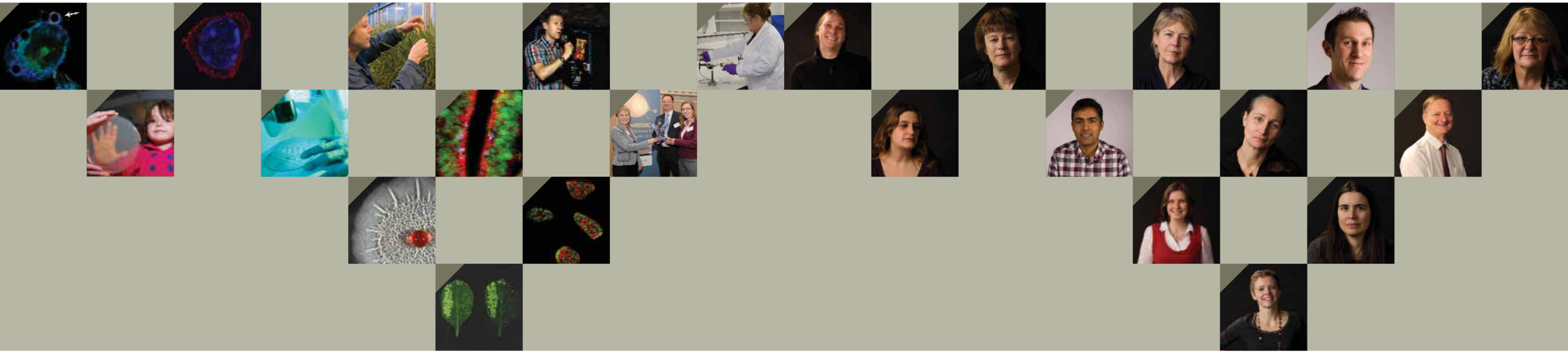

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College of Life Sciences
University of Dundee, Dow Street, Dundee, DD1 5EH

www.postdoc-pathways.lifesci.dundee.ac.uk

‘Life is not easy for any of us. But what of that?
We must have perseverance and above all
confidence in ourselves. We must believe that
we are gifted for something, and that this thing,
at whatever cost, must be attained.’

Marie Curie, Physicist, Two-time Nobel Laureate (1867-1934)

Contents

The timelines contained within this publication are colour coded as follows:

Academic:
- Undergraduate Degree
- Research Student
- Masters Degree
- PhD
- Postdoctoral Position
- Principal Investigator
- Lecturer
- Fellowship

Papers Published:
- First Author
- 2nd & other Author
- Last Author

- Married
- Child born
- Patents

Industry/Non-academic:
- Industry
- Industry Postdoctoral Position
- Industry Principal Investigator

Other:
- Postdoctoral Funding
- First Independent Funding

- Editorial Board
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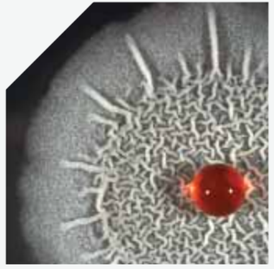
- Management

- Fellow of Societies
- Awards
- Memberships
- Sharing Science
- CLSPA
- UKRSA

- Part-time Teacher
- Research Assistant
- Part-time Lecturer
- Teaching Assistant

Foreword

Professor Pete Downes
Principal & Vice-Chancellor, University of Dundee



Looking back, the time I spent as a PhD student and subsequently as a postdoctoral research fellow were some of the most enjoyable and exciting of my scientific career. I had none of the responsibilities which come with being an independent PI and could focus on the science, my own experiments and the thrill of adding to the sum of knowledge and understanding. But they were also uncertain times as I faced the inevitable decisions about my future. For me this involved research jobs in the pharmaceutical industry before finally becoming an academic PI in what was then the Biochemistry Department here in Dundee.

The transition from postdoc into long term employment remains one of the most challenging steps in a scientist's career. I therefore welcome this brochure which plots the career pathways of PIs and non-PIs in the College of Life Sciences. It is immediately obvious that no two career paths are the same. How our PIs coped with life changing events and integrated their careers with family and other responsibilities are important ingredients of their success and valuable lessons for PIs of the future.

What should also be obvious is that not everyone is cut out to be a PI and this brochure should help everyone who reads it to make that decision. Only about one in seven postdocs become independent academic PIs and this is a statistic it is as well to be familiar with from the start. PIs tend to be highly focussed and determined throughout their careers and they have usually been productive in terms of high quality publications each step of the way. This requires a lot of hard work and plenty of luck along the way.

The good news is that if these characteristics don't sound like you there are plenty of other careers where your research experience will be invaluable. My advice is to enjoy every moment of your time as a PhD student or postdoc, think hard about what makes you tick, your strengths and weaknesses and be flexible about your career options.

Introduction

Dr Emma Compton and Dr Nicola Phillips
Postdoctoral Researchers in the College of Life Sciences, University of Dundee

The range of careers that are open to those who have a Science PhD is vast, however approximately half of those who achieve this qualification will choose to begin their career as a Postdoctoral Researcher performing research under the supervision of a Principal Investigator (PI). The 2013 Careers in Research Online Survey* showed that the majority of these researchers wish to remain in higher education research or teaching. In the long term, however, the low number of available positions means that competition for academic roles is high. Deciding whether to follow an academic career path to run your own research group or to pursue a different one can be daunting. This project was initiated to help demystify these decisions by looking at the career pathways of successful scientists within and around the College of Life Sciences at the University of Dundee.

We have interviewed people who are at different stages along the academic career track, from a newly recruited PI, just forming his own research lab, to the Vice-Principal of the University. We've also taken a look at some who left the 'traditional' path to fulfil different roles within the University of Dundee for which their science training is highly valuable. We have translated their career paths into timelines so they can be easily visualised and compared. You will see how varied each career pathway is; from those staying in one institute to those who have moved all over the world, working full time or part time and the family commitments which have influenced their decisions. We have highlighted the positions they have held, from their first undergraduate degree to where they are now at the end of 2013 and the papers they have published, either as a first author (where the research is primarily their own) or a last author (where the work was performed by those working in their lab). For those that have stayed in academia, we show the funding they received which allowed them to start their own research programme and the additional roles they have taken on as their careers have progressed. For those that have moved away from the bench we have charted the journey that has brought them to where they are today.

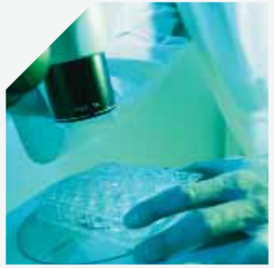
This brochure forms part of a multi-media project. Interactive timelines can be explored at www.postdoc-pathways.lifesci.dundee.ac.uk with video clips from each interview so you can listen to the stories behind their choices. Whether you are considering a career in Science or are simply interested in those who work here we hope you find this project interesting.

Much of the advice we have been given is that you shouldn't be afraid to take risks and follow your passions; most of the scientists we interviewed didn't have clear career goals at the outset. We hope that you find this brochure interesting and useful in helping you plan your career and we wish you the best of luck for the future!

*http://www.vitae.ac.uk/CMS/files/upload/Vitae-CROS-Report-2013.pdf

Yogesh Kulathu

Programme Leader, MRC Protein Phosphorylation and Ubiquitylation Unit, College of Life Sciences



Becoming a Scientist was rather a late decision. When I was studying for a degree in Engineering I took an elective course in Molecular Biology and Immunology which was my first real exposure to Molecular Biology. It intrigued me so much that I did a Masters in Biotechnology. It was clear then that a PhD was the next step.

I moved from India to Germany to study for a PhD with Michael Reth at the Max Planck Institute of Immunobiology. I studied lymphocyte signaling and development regulated by kinases and was fortunate to have a supervisor whose attitude of 'play and learn' encouraged creative thinking.

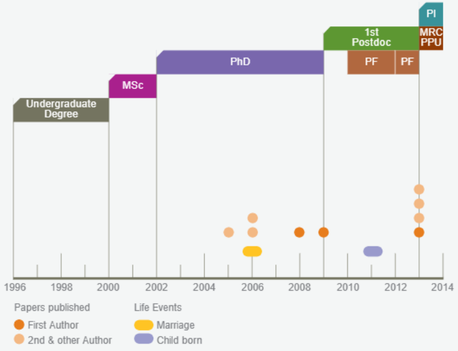
I decided to do a postdoc and I cast the net wide before settling on David Komander's newly established group in Cambridge. It was a huge risk to be part of a new group, but very exciting. I learnt everything I know about X-ray crystallography at the LMB over the years I was there. At the start of my postdoc in Cambridge I applied for both the Marie-Curie Intra-European and the EMBO Long Term Fellowships and was awarded both a year later. An agreement between the two funding bodies enabled me to accept both which resulted in me receiving postdoctoral funding over a three year period.

My wife is also a scientist and when we finished our postdocs we needed to decide on where was best to move for both our careers. Dundee offered opportunities that matched both our scientific interests. The opportunity to start my own group at the MRC-PPU allows me to combine the expertise I have developed in the different research labs I have worked in and apply it to the research of understanding signal transduction.

A Day in my Life

My day starts early so that I can fit some work in before my daughter wakes up. As a Programme Leader at the MRC-PPU my research is core funded and administrative and teaching duties are kept to a minimum. This gives me the possibility to spend the majority of my time at the bench doing experiments. I have recently recruited my first postdocs and a PhD student, making up a good team. So I am just beginning to experience the excitement of directing the research of my own lab and of being able to follow up on many more ideas with the help of the people in my lab.

'Pursue a career in science if it excites you and you are really passionate about it.'



Undergraduate Degree
Birla Institute of Technology and Science, Pilani, India
Chemical Engineering
Elective course - Molecular Biology and Immunology

Masters Degree
Birla Institute of Technology and Science, Pilani, India
Biotechnology

PhD
Max Planck Institute of Immunobiology and University of Freiberg, Germany
Professor Michael Reth
B cell antigen receptor signalling and protein tyrosine kinase regulation

Postdoctoral Position
MRC Laboratory of Molecular Biology, Cambridge
Dr David Komander
Structural basis driving linkage specificity in ubiquitin binding domains and in the ovarian tumour (OTU) family of deubiquitinases.

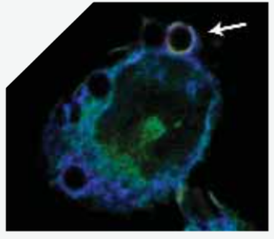
Postdoctoral Fellowships
Marie Curie Intra-European Fellowship
EMBO Long Term Fellowship

PI: Programme Leader
MRC Protein Phosphorylation and Ubiquitylation Unit, Dundee
Mechanistic basis of signal transduction regulated by post-translational modifications (PTMs)

First Independent Funding
Core Funding MRC Protein Phosphorylation and Ubiquitylation Unit

Matthias Trost

Programme Leader and Head of the Proteomics Division in the MRC-Protein Phosphorylation and Ubiquitylation Unit, College of Life Sciences



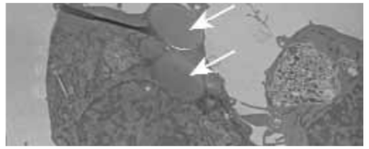
I'm originally a Chemist, but I moved relatively quickly into the field of Biochemistry, completing my PhD in Cell Biology and Proteomics and am now working in Cell Biology and Immunology as a Programme Leader and Head of the Proteomics facilities at the MRC-PPU. My interests changed quite considerably – I never would have expected to do what I'm doing now!

I came to mass spectrometry-based proteomics, the technique in which I became an expert, by coincidence during an ERASMUS student exchange in Manchester, showing that small decisions or pure chance can change your entire career. This is also exemplified with my PhD. My partner finished her masters before me and like many other scientists I followed her at the time to Northern Germany. Luckily there happened to be a proteomics group using extensive cell biology of which I had very little knowledge. I learned a lot of new things there and it was the start of my career in Cell Biology. Towards the end of my PhD, when looking for postdoctoral positions, I remember quite clearly searching for articles in PubMed with 'Proteomics' and 'Cell Biology' and found only a few groups who had published in this field. One of the groups was in Montreal working on proteomics of phagosomes which seemed a logical continuation of my work after my PhD. I applied well in advance and wrote a fellowship application myself with feedback from my PhD supervisor and I was lucky enough to be awarded it.

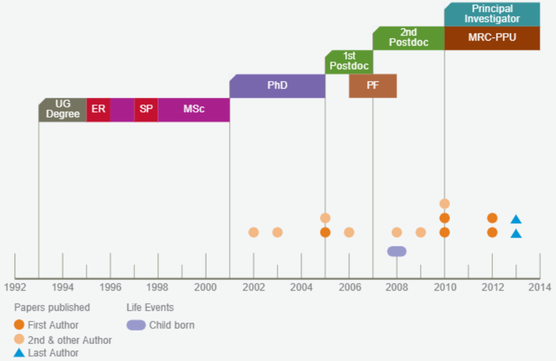
I knew quite early I wanted to become a group leader, however, I often wondered if I would get the chance to do that job. I think my persistence helped me through this difficult period and once my first big paper was published I applied to various places around the world, eventually getting a good position in Dundee – I've been here for three years now and it's an exceptional place to do science.

A Day in my Life

I spend most of my time in front of the computer analysing mass spectrometry data, writing grants and manuscripts or working on presentations. Quite a lot of my time is occupied with meeting students and postdocs, collaborators, admin and – as I am in a technological field – company representatives. I need to keep up to date with new technology and research and thus I also devote a good time each week reading papers. I work hard during the week trying to keep the weekends free for family, although this is not always possible.



My interests changed quite considerably – I never would have expected to do what I'm doing now!



Undergraduate Degree
University of Freiburg, Germany
Chemistry
ER - Erasmus student fellowship:
UMIST, Manchester
BSc (Hons) Chemistry

Masters Degree
University of Freiburg, Germany
Diploma in Chemistry
SP - President of the Student Union of the University of Freiburg (sabbatical year)

PhD
Helmholtz Centre for Infection Research (HZI), Braunschweig, Germany
Professor Jürgen Wehland
Functional genome analysis of secretory proteins and the Host-Pathogen-interactions of the human pathogen Listeria monocytogenes

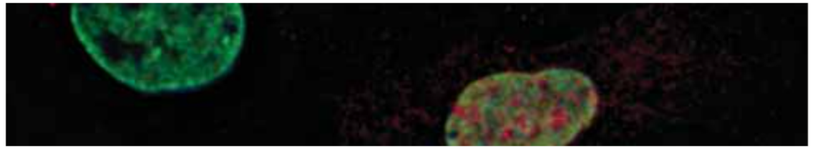
Postdoctoral Positions
1 Université de Montréal, Canada
Professor Michel Desjardins and Professor Pierre Thibault
Phagosomal proteome and phosphoproteome of activated macrophages

2 Institute in Research in Immunology and Cancer (IRIC), Montréal, Canada
Professor Pierre Thibault
Proteome and phosphoproteome of leukemic stem cells

Postdoctoral Fellowship
Postdoctoral Fellowship of the Deutsche Forschungsgemeinschaft (DFG)

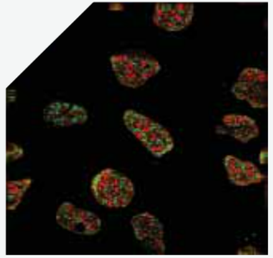
PI: Programme Leader
Head of Proteomics
MRC Protein Phosphorylation and Ubiquitylation Unit, Dundee
Proteomics to understand phagosome biogenesis and cellular signal transduction

First Independent Funding
Core Funding MRC Protein Phosphorylation and Ubiquitylation Unit



Dr Sonia Rocha

CR-UK Senior Research Fellow, Lecturer and Deputy Head of The Centre for Gene Regulation and Expression, College of Life Sciences



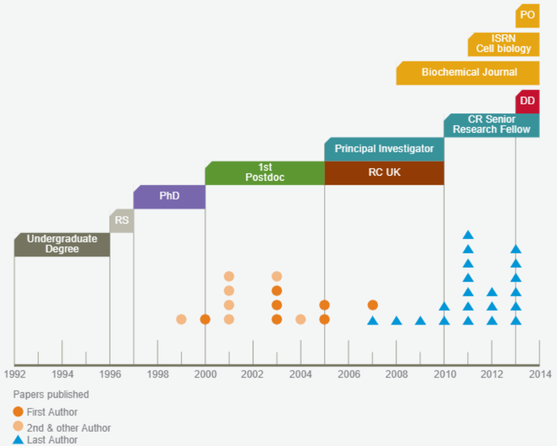
I think my interest in science started when I was in high school and was first exposed to Medical Biology. My Biology teacher inspired me in science in general and when I studied at university I knew that I wanted to participate in the research process and eventually run my own team. After my degree I took a year out and worked as a researcher on a project in Uppsala University in Sweden. Following that, I took some graduate courses where I met a pioneering researcher in the field of apoptosis. He suggested that I apply for a PhD with his group and I started my PhD a month later!

I decided to pursue research in Cancer Biology and moved to Dundee to work in Neil Perkins' group. I was offered my own group after three years, but decided to gain more experience and waited two more years. I'm unusual in that I started my own group where I had done my postdoc, I had to fight hard to secure funding. Instead of receiving a Fellowship, I applied for, and was granted, one project grant and a New Investigator Award and it was with this funding I started my own research programme. After passing my tenure review, I was awarded a Senior Cancer Research Fellowship which gives me funding for the next six years.

A Day in my Life

When I arrive at work at around 8am I check on my cells and prepare for any experiments I will run during the day. The rest of each morning is spent answering emails and doing administrative work, which includes writing and reviewing manuscripts and grants, preparing lectures and divisional administration, such as organising public engagement events. I continue with experiments in the lab after lunch, and also use this time to meet each member of my lab once a week to discuss their research. Usually I return home between 18.30 and 20.30 in the evening.

You need to decide what you love and then work hard to achieve it.



Undergraduate Degree
Porto University, Portugal
Biology, 16/20
Professor Isabel Santos
Influence of inflorescence removal and nitrogen nutrition on the quality of the tubers in Solanum tuberosum (L.)

Research Student
Porto University and University of Uppsala, Sweden
Professor Peter Lindblad (Uppsala) and Paula Tamagnini (University of Porto)
Research scholarship from Praxis XXI/JINCT (Portugese Research Council)

PhD
Swiss Federal Institute of Technology, Zurich, Switzerland
Dr Martin Pruschy and Professor Dr K H Winterhalter
Analysis of different aspects of the apoptotic pathway in cancer cells after ionising radiation and/or chemotherapeutic compounds

Postdoctoral Research Assistant
University of Dundee
Professor Neil Perkins
Project researching the role of NF-kB in cancer and in particular the involvement and interconnection with the p53 and p14ARF tumour suppressors

First Independent Funding
Research Council UK Fellowship

PI: Principal Investigator, Cancer Research UK Senior Research Fellow
Centre for Gene Regulation and Expression, Dundee
Mechanisms of Gene Regulation following Hypoxic Stress

Deputy Director of The Centre of Gene Regulation and Expression

Editorial Boards
Biochemical Journal

International Scholarly Research Network: Cell biology

Plos One (Academic Editor)

Dr Nicola Stanley-Wall

Senior Lecturer and Deputy Head of The Division of Molecular Microbiology, College of Life Sciences

I've always been interested in Natural History; when I was at school I was involved with the nature group at the local country park where eventually I became a leader. I chose a University that had a very broad scientific degree available and whilst studying I took a year out to work in industry. During that year I worked as a research assistant, which helped to put all my courses into context. I did a PhD in Norwich with Professor Tracy Palmer and Dr Ben Berks where I had the opportunity to work alongside Tracy at the bench. It was a very exciting time.

Following my PhD I moved to Los Angeles with my husband to do a Postdoc and whilst there, I decided to write a research fellowship application. It was successful and allowed me to start up my own group in Dundee. I now lecture as well and hope to maintain a balance between lab work and contact with students.

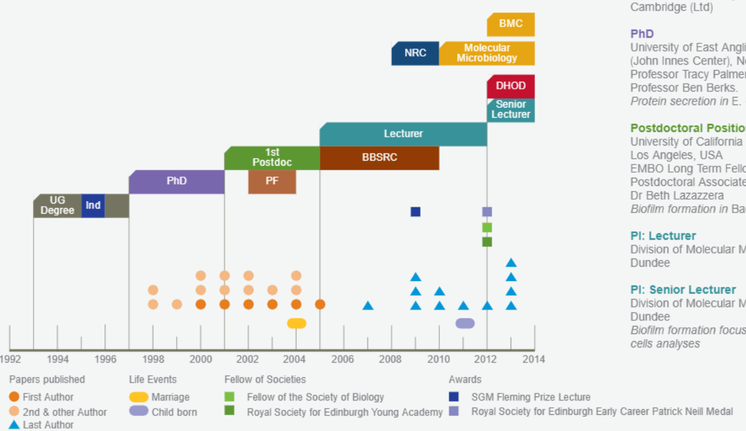
There are many reasons for doing a PhD, not only for the scientific training, but also to learn about working as part of a team, problem solving and time management.

A Day in my Life

My days are highly varied, each being a balance between my research, teaching, admin and outreach responsibilities. When I am in the lab I spend my time meeting with my group to discuss their research and in my office reading, writing or reviewing journal articles or grant applications. I also spend time preparing and delivering lectures and practical sessions for students, and on the more administrative side, help with the current redevelopment of our undergraduate courses. I have additional administration duties linked to my role as Deputy Head of the Division where I am involved in recruitment and other divisional activities.

I have developed a number of hands-on activities which I take into local schools to get children excited about Science and Microbiology. My interest in Scientific outreach has led me to organising 'Magnificent Microbes', an event held every two years at the Dundee Science Centre, which aims to show members of the public, young and old, how interesting and useful microbes are.

There are many reasons for doing a PhD, not only for the scientific training, but also to learn about working as part of a team, problem solving and time management.



Undergraduate Degree
University of East Anglia, Norwich
Bachelor of Science: 1st Class Hons, Cell Biology

Undergraduate Industrial Placement Year
Advanced Technologies
Cambridge (Ltd)

PhD
University of East Anglia
(John Innes Center), Norwich
Professor Tracy Palmer and
Professor Ben Berks.
Protein secretion in E. coli

Postdoctoral Position
University of California
Los Angeles, USA
EMBO Long Term Fellow/
Postdoctoral Associate
Dr Beth Lazazzera
Biofilm formation in Bacillus subtilis

PI: Lecturer
Division of Molecular Microbiology,
Dundee

PI: Senior Lecturer
Division of Molecular Microbiology,
Dundee
Biofilm formation focus on single cells analyses

Postdoctoral Fellowship
EMBO Long Term Fellowship

First Independent Funding
BBSRC David Phillips Fellowship

Deputy Head of the Division of Molecular Microbiology

Editorial Boards
Molecular Microbiology
BMC Microbiology

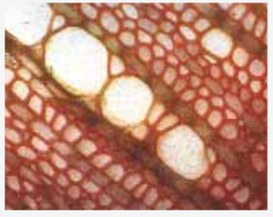
Funding Panel
Norwegian Research Council
'FRIBIO' grant review panel

Major Public Engagement Events
2010 Magnificent Microbes
2011 Bell Baxter High School Microbiology Club
2012 Bell Baxter High School Club
2012 Magnificent Microbes 2

Awards For Public Engagement Activities
2013 BBSRC School Regional Champion
2012 Royal Society for Edinburgh Junior Beltane Prize
2011 Society for General Microbiology Outreach Prize
2011 College of Life Sciences Brian Cox Award for Public Engagement Activities

Professor Claire Halpin

Professor of Plant Biology and Biotechnology and Deputy Head of the Division of Plant Sciences, James Hutton Institute



In secondary school I started to develop an interest in Biology and Chemistry. I studied Botany at University College Dublin for my first degree, followed by a teaching qualification and then a Masters in Pharmacology because I still had a hankering for Biomedical Science. I realised then that it was definitely Plant Sciences that I enjoyed and went on to study this for my PhD at the universities of Leicester and Warwick whilst I was employed as a part-time research assistant.

Other than staying in plant science I didn't have a clear game plan. I moved to ICI (Zeneca) Seeds to work as a Postdoctoral Fellow on a European Union funded project. I received a good deal of support and was encouraged to take responsibility for project management. I ended up running the project and was made permanent.

Whilst at Zeneca I contributed to some great, high quality research. However, the poor public perception of genetically modified plants restricted the projects I was working on. I made the decision to move back into academia when my husband took up a lectureship at St Andrews. I was awarded funding for a collaborative project grant with him at the same time as being offered a lectureship at Dundee. Had I not found a permanent position I could have used the grant to work in his lab, however it allowed me to start my own group with the academic freedom to work on what I was passionate about.

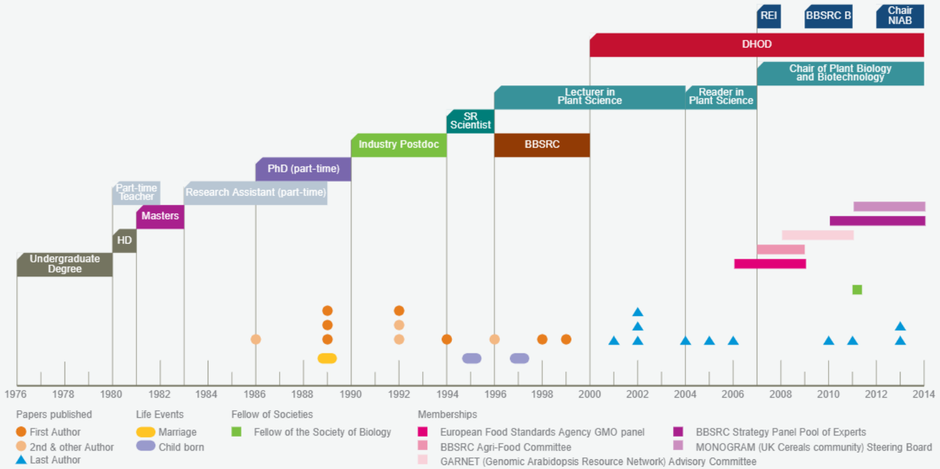
My time working in industry encouraged me to work collaboratively with labs all over the UK, Europe, and beyond, something I continue to do with my own research group, particularly through our involvement with the BBSRC Sustainable Bioenergy Centre (BSBEC).

I found the transition between industry and academia a very natural one; I'd encourage anyone who wants to move into industry to find a position where they can keep publishing if they would like to keep their options open for a return to academia.

A Day in my Life

Before work each morning I spend one to two hours concentrating on any writing I need to do. At work I spend a lot of time in real or virtual meetings: with my students and postdocs to discuss their research and papers we are writing; with collaborators and with administrative boards. Any breaks in the day are spent analysing data and responding to emails. Though I don't perform any research myself anymore I help out with big harvests! In the evening and at the weekend I work at home; writing and editing papers and grants, researching scientific literature and reviewing papers and grants of other groups.

Build your confidence and don't set your own limitations.



Undergraduate Degree
University College Dublin
BSc Hons Botany

Higher Diploma in Education
University College Dublin

Masters Degree
MRes Pharmacology,
University College Dublin

Research Assistant
Biological Sciences,
University of Warwick

PhD
University of Leicester
and University of Warwick

Postdoctoral Position (Industry)
Zeneca Seeds, Bracknell, Berkshire

Senior Research Scientist
Zeneca Seeds, Bracknell, Berkshire

Lecturer in Plant Science
University of Dundee

Reader in Plant Science
University of Dundee

Chair of Plant Biology and Biotechnology
University of Dundee

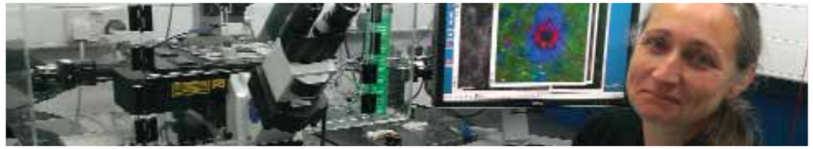
First Independent Funding
BBSRC project grant

Deputy Head of the Division
Environmental and Applied Biology 2000-2007
Plant Sciences 2007 - Present

Funding Panels
BBSRC Research Equipment Initiative panel

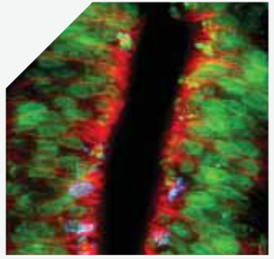
BBSRC Committee B

Chair of the NIAB Community Resource for Wheat Transformation



Professor Kate Storey

Professor of Neural Development and Head of the Division of Cell and Developmental Biology, College of Life Sciences



I was always curious about how things worked and got excited about the idea of doing experiments. I started out studying Biochemistry but then moved to Neurobiology, which led me to my area of real interest, how cells signal to each other and differentiate into functioning, thinking tissue. I decided to do a PhD, which in those days was a sink or swim experience – you had to find a project for yourself, it was very much your journey.

I moved to California to work as a Postdoc before coming back to the UK to give birth to my first child, Alexander. There's never a good time to have children within a career, but I knew I wanted to have a family. I decided to write a grant that would allow me to work part-time in the laboratory of Dr Claudio Stern at the University of Oxford. This supported part-time salaries for both myself and a technician, an unconventional approach that allowed my research to keep moving and me to spend time with my children. I applied for an MRC project grant towards the end of this position, which I was able to use to employ a postdoc when I became a Departmental Lecturer at the University of Oxford. So, I began my own research group whilst teaching human anatomy to medical students three days a week – which was quite challenging.

I moved my group up to the University of Dundee in 2000, supported by an MRC Senior Non-Clinical Fellowship. This allowed me to reduce my teaching commitments and gave me time to focus on research.

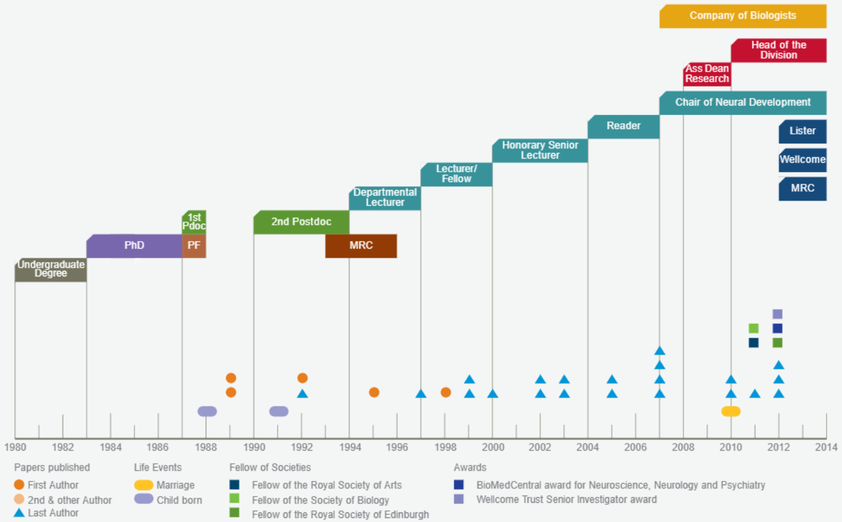
I have collaborated with my sister, Helen Storey, an artist and fashion designer, to produce two series of dresses representing both the first 1000 hours of human life and exploring the science behind the development and function of the lungs.

The exhibition has received critical acclaim and continues to tour, it can also be seen at http://www.primitive-streak.org/

A Day in my Life

My day starts with taking my dog for a walk and checking through email. When I arrive at work I usually meet briefly with the divisional secretary to confirm meetings and travel arrangements for the week. After greeting my lab I spend most of the day writing, editing and reviewing papers and grants as well as going to seminars, talking to speakers and attending administrative meetings. A lot of my time right now is spent reviewing grant applications as I am a member of several research funding panels. I teach depending on which semester we're in, so I also spend time preparing and delivering lectures. I meet one-to-one with each member of my lab at least fortnightly to discuss their research, this often includes working with them at the bench or microscope.

What has helped me in my career is knowing when to push myself harder and when to let go – pace it and you'll be alright.



Undergraduate Degree
University of Sussex
BSc Neurobiology: 1st Class Hons

PhD
Department of Zoology, Kings College, University of Cambridge

Postdoctoral Positions
1 UC Berkeley, California, USA
2 Department of Human Anatomy, University of Oxford

PI: Departmental Lecturer
Department Human Anatomy, University of Oxford

PI: University Lecturer/ Fellow of Christ Church
Department of Human Anatomy and Genetics, University of Oxford

PI: Honorary Senior Lecturer
Division of Cell and Developmental Biology, University of Dundee

PI: Reader
Division of Cell and Developmental Biology, University of Dundee

PI: Chair of Neural Development
University of Dundee

Postdoctoral Fellowship
Harkness Fellowship

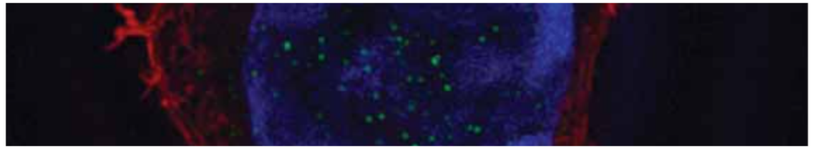
First Independent Funding
MRC project grant

Associate Dean of Research

Head of the Division of Cell and Developmental Biology

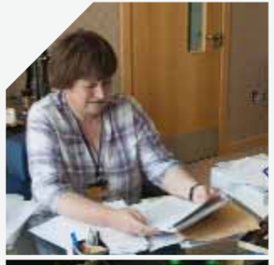
Director/Trustee of the Company of Biologists
Registered charity and not-for-profit publisher

Funding Panels
Lister Institute Fellowships
Wellcome Trust Panel of Experts
MRC, Neuroscience and Mental Health



Professor Doreen Cantrell, CBE

Professor of Cellular Immunology, Wellcome Trust Principal, Research Fellow and Vice Principal and Head of College, College of Life Sciences

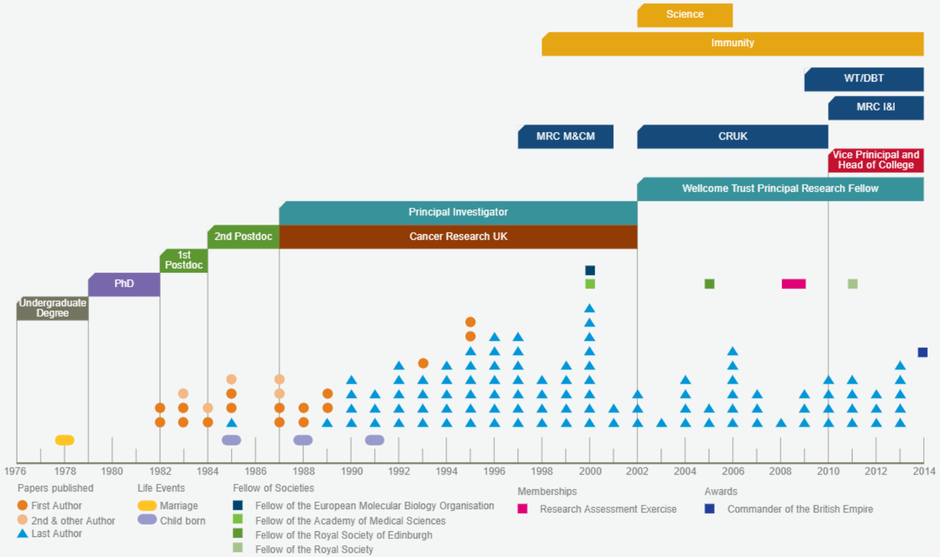


As a schoolgirl, no one would have guessed that I would end up as a scientist because my academic strengths were in humanities. However, in 1975 I attempted to save the planet by studying Environmental Science at University College of Wales in Aberystwyth. One miserable term of mapping salt marsh plants on the wet Welsh coast and an inspiring Immunology lecture prompted a revision of my plans and a switch to a Zoology degree. I initially got mediocre grades at University actually failing first year Biochemistry. There is considerable irony that I am now recognized internationally as an immunologist and a biochemist! I married in second year, making my tutors further doubt my academic aspirations! However, to everyone's surprise, including my own, I ended up with a First Class Honours degree.

I completed a PhD in Immunology in the Cancer Research Campaign Laboratories in Nottingham. I had two postdoctoral fellowships: one at Dartmouth College in the USA and one at the London Research Institute (LRI) of Cancer Research UK. In 1987 I established my research group at the LRI and then developed my independent career in this Institute. My three daughters were born in 1985, 1988 and 1991. Combining family life with an academic career was eminently feasible with a husband who delighted in sharing equally the raising of our family. I moved to Dundee in 2002, recognising that this would be the best place in the world to develop my scientific programme and achieve a good work life balance. A Wellcome Trust Principal Research Fellowship has been essential in allowing my group to achieve its research goals.

In 2010 I became Head of the College of Life Sciences and Vice-Principal of the University of Dundee. I also became Chair of the Medical Research Council Infection and Immunity Board and I still run my research group. The three roles may seem different but they are about trying to get the best out of people and supporting and encouraging high quality science.

You can have both a family and a career if you're determined enough to want it – you need to be adventurous and flexible.



Undergraduate Degree
University College of Wales, Aberystwyth
BSc Zoology: 1st Class Hons

PhD
Cancer Research Campaign Laboratory, University of Nottingham
Dr R A Robins and Professor R Baldwin

Postdoctoral Positions
1 Dartmouth Medical School, Hanover, New Hampshire, USA
Dr Kendall Smith

2 Cell Surface Biochemistry Lab, Imperial Cancer Research Fund, London
Dr M J Crumpton

PI: Principal Investigator
Head of Lymphocyte Activation Laboratory, London Research Institute

PI: Wellcome Trust Principal Research Fellow
Professor of Cellular Immunology
College of Life Sciences, Dundee

First Independent Funding
Core Funding, Cancer Research UK
London Research Insitute

Vice Principal and Head of College of Life Sciences

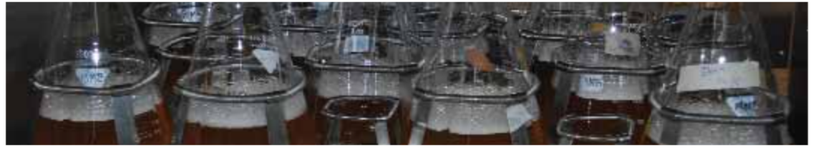
Editorial Boards
Editor of Immunity
Board of Reviewing Editors of Science

Funding Panels
Medical Research Council Molecular and Cellular Medicine Board

Cancer Research UK Science Funding Committee

Chair of the Medical Research Council Immunology and Infections panel

Chair of the The Wellcome Trust/DBT India Alliance Early Fellowship committee



Dr Emma Compton

Postdoctoral Research Assistant,
Division of Molecular Microbiology,
College of Life Sciences

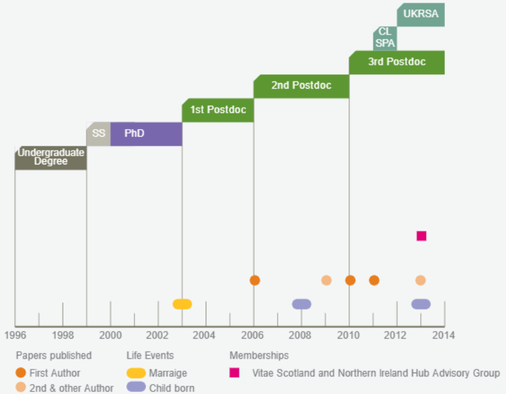
I did my first degree in Biochemistry at the University of Bristol as I was interested in the complexity of life and really enjoyed how Chemistry applies to Biology. Following my degree I stayed in Bristol for my PhD; I really enjoyed Science and knew a PhD could be useful in the future, but I wasn't sure what I wanted to do in the end. I remained in Bristol for a postdoc, changing subject to an up-and-coming field working with membrane proteins, as I felt there wouldn't be as many opportunities in my current field. For my second postdoc, I moved with my husband to the National Institutes of Health in America as finding jobs for both of us in science in the same place in the UK was difficult.

When I moved to Dundee I decided to take as many opportunities as possible. Everyone assumed I would be a PI and it took me a long time to realise that it wasn't what I wanted to do, but that this didn't make me a failure. I became the Co-Chair of the Postdoc Association through which I met many people with different experiences within and around science that helped me decide what I want to do with my career, which is to move into Staff Development. Being Co-Chair of the Postdoc Association has also led on to my being involved with the UK Research Staff Association and Vitae. I'd like to make a real impact, to help provide support for PhD students and Postdocs so they can make the most of their time in academia and are aware of all the possibilities.

A Day in my Life

I spend most of my time in the lab doing experiments, either my own or supervising students. The rest of my time is at a computer reading papers, analysing results or writing results up into a paper. It's not a 9 to 5 job, some days can be very long and I often work at home in the evenings or on weekends. I am mostly in charge of my own time though which allows me the flexibility to spend time with my family and to be involved in the College of Life Sciences Postdoctoral Association and the UK Research Staff Association.

Take every opportunity that's available – talk to people about what else is out there!



Undergraduate Degree
University of Bristol
BSc (Hons) Biochemistry: 2:1

Summer Studentship
University College London, London
Professor Dame Janet Thornton
Computational prediction methods for enzyme activity

PhD
Department of Biochemistry, University of Bristol and Long Ashton Research Centre, Bristol
Professor Tony Clarke and Professor Peter Shewry
CASE studentship. Design of novel serine protease inhibitors

Postdoctoral Positions
1 Department of Biochemistry, University of Bristol
Professor Paula Booth
Refolding and dynamics of membrane proteins in artificial lipid systems

2 Membrane Transport Biophysics Unit, NINDS, NIH, Maryland, USA
Joseph Mindell, MD PhD
Structure/function studies on a glutamate transporter homologue

3 Division of Molecular Microbiology, Dundee
Dr Arnaud Javelle
Structure/function analysis of dicarboxylate transporter homologues

CLSPA: Co-Chair, College of Life Sciences Postdoctoral Association

UKRSA: UK Research Staff Association, Scotland and Northern Ireland representative

Dr Jon Urch

Public Engagement and Outreach Co-ordinator, Revealing Research

Try as many different things as you can until you find something you're passionate about and follow that career.

© Alan Laughlin

For my first degree, I studied Biochemistry because I enjoyed it and I felt it would give me the broadest understanding of living organisms. Following that, I researched new drug targets for malaria for my PhD and then I secured a five year Postdoc at Dundee because I wanted to produce research that had an impact on the rest of the world.

My plan was always to run my own lab because my role models were successful academics in the field of drug discovery. However, my plans changed as I felt I wasn't making as much of an impact as I wanted and I started to look at opportunities to see what other careers I could go in to. I looked at Scientific Writing and also Knowledge Transfer, but it was when I became involved with a public outreach project, Sharing Science, that I knew what I wanted to do.
A position arose at the University of Dundee, jointly with the Dundee Science Centre, to deliver Sharing Science for a second year as well as setting up the Revealing Research Office. Changing career was difficult but I had some great support and I am now the Public Engagement Co-ordinator for Revealing Research at the University of Dundee, which is creative, challenging and changes on a daily basis!
Find something you're passionate about and follow that career. Try as many different things as you can.

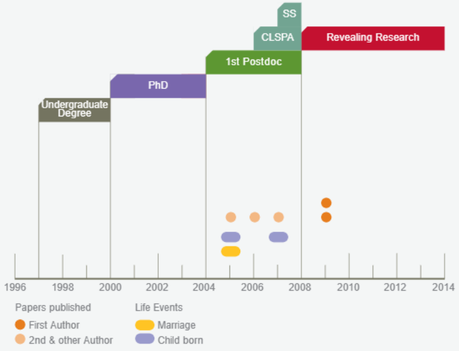
A Day in my Life

After dropping my daughters off at school, I start work at roughly 9:30am. There isn't really anything like a typical day. I may spend all day in meetings or be in the office in the Tower Building. Monday mornings start with a review of last week's activities and planning our objectives for the weeks ahead. This helps focus the office, especially during our busier times.

I spend a significant amount of time planning our future programmes months in advance. This involves liaising with speakers, booking venues and marketing events to public audiences. A lot of this work requires considerable email and phone correspondence. I often take to Facebook and Twitter to share details of our events.

There are opportunities to travel to support our public engagement in Dundee and across Scotland. I still really enjoy speaking face-to-face with the public and discussing the University's research.

The job requires roughly three late evenings a month and 3-4 weekend days at events. However, you might find me working late, especially on a Monday or Tuesday evening, before I head home to unwind.



Undergraduate Degree
University of Cardiff
BSc Biochemistry: 1st Class Hons

PhD
University of Cardiff
PhD Biochemistry
Dr Colin Berry and Professor John Harwood
Investigating new drug targets for the malaria parasite

Postdoctoral Position
University of Dundee
X-ray crystallography
Professor Daan van Aalten
Studies of the structure of carbohydrate processing enzymes

CLSPA Treasurer
College of Life Sciences Postdoctoral Association

Sharing Science
University of Edinburgh
Led project to discuss research with the general public at Sensation Science Centre and Oban

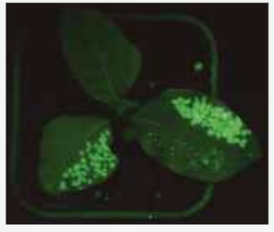
Public Engagement and Outreach Co-ordinator Revealing Research
University of Dundee
2008-2009 A University of Edinburgh led project funded by the Scottish Government to discuss research with the general public at Dundee Science Centre, Our Dynamic Earth and in Oban.

2009-2010 Funded by the Scottish Funding Council to coordinate Public Engagement across six Universities in NE Scotland, sharing best practise and supporting development of new initiatives.

2010-Present Centrally funded by the University of Dundee to lead Public Engagement across all research subjects.

Dr Rachel Toth

Joint Head of Molecular Cloning Group,
MRC Protein Phosphorylation and Ubiquitylation Unit, College of Life Sciences



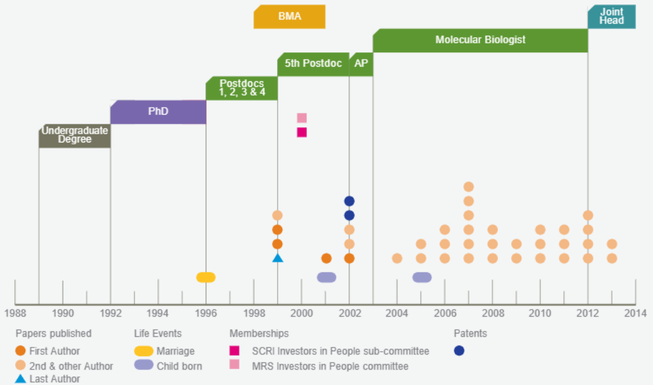
My first degree was from Durham in Molecular Biology and Biochemistry. I knew that I wanted a career in science but wasn't sure exactly what I wanted to do. Like so much of my career it was a bit of an accident! My supervisor knew some places that were offering PhDs and so I applied to Warwick University and studied there. A PhD is an extremely difficult thing to do at times, but I made friends for life. After my PhD I volunteered in Zambia for three months, then came back and married. My husband was working at the James Hutton Institute in Dundee and I got a position there working on late blight in potatoes, which was quite a change from my previous interests in Molecular Virology and Human disease. Subsequently, I held postdoc positions at the JHI working on developing recombinant antibodies and also with a Biotechnology company based in the USA to generate targeted therapies in plants using plant viral vectors. Following that, I moved to Dundee University where I'm now Joint-Head of the Molecular Biology group that supports the Medical Research Council unit – we provide all the clones that feed into the research groups of the unit. I always enjoyed the precise molecular aspects of my postdoc research, and my current position is very suitable for me as I enjoy working in the lab and it demands high levels of efficiency and organisation.

When you do a PhD the expectation is that you will follow a path towards running your own research group, but I gradually realised that that wasn't what I wanted to do. By following opportunities that were available at the time, I have found myself in a position that is challenging, allows me to work in the lab, and with management responsibilities.

A Day in my Life

In order to meet the demand for DNA clone products, whilst maintaining a high standard of service, we have to be very efficient in the lab whilst maintaining accuracy. This means my day is pretty full-on, focussed, and involves me juggling lab work and computer work such as DNA sequence analysis; cloning strategy design; writing methods and reports; responding to queries from users or DSTT collaborators; ordering reagents and maintaining the group's online database. I have meetings with PIs, postdocs and students to discuss new cloning projects and also meet with other cloning group members to trouble-shoot technical difficulties with current projects. I undertake some training of students and postdocs when required and also spend some time responding to external requests for clones that come in from the new public MRC-PPU reagents website. If I have time, I might nip over the road for a game of squash as stress relief!

Don't be scared to jump out of a particular career path if it's not what you want to do – it can be seen as a bit of a failure if you do something different – but it shouldn't be!



Undergraduate
University of Durham
BSc (Hons) Biological Sciences: 2.1

PhD
University of Warwick
PhD Molecular Virology
Professor Malcolm McCrae

A Molecular and Immunological study of the envelope glycoprotein E2 of Bovine viral diarrhoea virus (BVDV)

Postdoctoral Positions

1 SCRI (Scottish Crop Research Institute), Dundee
Department of Fungal and Bacterial Plant Pathology (FBPP)
Professor Paul Birch
The development of a molecular fingerprinting system for Phytophtora infestans, and the identification of potato genes important in resistance to P. infestans.

2 Plant pathologist at SCRI, FBPP
Professor Paul Birch
Determination of the genetic structure of the late blight outbreaks in Scotland. An assessment of the hazard of sexual reproduction by P infestans to the seed and ware potato industries of Scotland.

3 SCRI, Department of Virology
Professor Lesley Torrance
Development and evaluation of recombinant antibodies for the diagnosis of plant viruses.

4 SCRI, Department of Virology
Professor Lesley Torrance
Development of recombinant antibodies for the detection, monitoring and elimination of pollutants in water.

5 Mylnefield Research Services Ltd.
Postdoctoral Virologist
Professor Karl Oparka
Study of aspects of foreign gene expression using plant viral vectors, in collaboration with Large Scale Biology Corporation, USA.

Assistant Principal Scientist
Mylnefield Research Services, Ltd
Lab Manager: Professor Karl Oparka

Molecular Biologist
Molecular Cloning Group, MRC PPU,
University of Dundee
Professors Philip Cohen/Dario Alessi

Joint Head of Molecular Cloning Group
Molecular Cloning Group, MRC PPU,
University of Dundee
Professor Dario Alessi

Editorial Boards
Book reviewer for British Medical Association

Patents
5760892.7
Production of peptides in plants as viral coat protein fusions.

60/407,795
Development of a tiled peptide library on the surface of a plant virus and expression of specific epitopes of human papillomavirus and human immunodeficiency virus on the surface of a plant virus.

Dr Linda Morris

Associate Dean, School of Learning and Teaching, College of Life Sciences

I had a long gap of seventeen years between school and university when I ran my own catering business, got married and had three children! I'd always had an interest in science; when some of the teenagers I employed had science homework to do I would help them and this encouraged me to apply for teacher training. I was advised to do a degree in Biology first which would allow me to teach science at Secondary level. But during the first year of my degree I discovered an enthusiasm for Chemistry that led me to switch courses and then continue to study for a Masters and a PhD in Analytical Chemistry – I never made it to being a Secondary School teacher!

I became more involved in teaching at Aberdeen University during my MSc and PhD, taking tutorials for my supervisor and eventually as a Postdoc teaching a lot of his course. Realising that my main enjoyment was in the teaching of science and not the research I applied for a 2 year teaching position at the University of Dundee. It felt like a risk taking such a short contract but the experience I gained in those two years resulted in my being offered a permanent position. I've been a Lecturer here ever since and have progressed to the role of Associate Dean of the School of Learning and Teaching. In my pastoral role, I give advice to students on what they can do after their degrees. I emphasise that they need to do what they enjoy and to be aware of opportunities. Pathways open up and you just have to see where they take you!

It's a tall order to manage children and a career. Doing the job I do now with small children would have been stressful so starting my scientific career when my children were older was a good choice for me. You can still have career progression at a later date.

A Day in my Life

I start my day early, checking and replying to emails before I get into the office at about 8.15am. My day-to-day work varies depending on my timetable; at the moment I teach for about a quarter of my time and the rest is spent fulfilling my management role and administering courses. I teach at all undergraduate levels and deliver workshops, practical laboratory classes and lectures. I meet with students to discuss their progress and offer advice to them about their studies and futures. When I'm not teaching, preparing for classes or marking coursework I organise course modules and curriculum. I also attend management meetings which can be to discuss individual modules, year groups or the School as a whole.

Do what you enjoy and be aware of opportunities.
Pathways open up and you just have to see where they take you!

Undergraduate Degree
University of Aberdeen
BSc Chemistry with Environmental Chemistry: 2.1

Masters Degree
University of Aberdeen
MSc Analytical Chemistry

Postgraduate Certificate in Teaching in Higher Education
School of Learning and Teaching, University of Dundee

PhD
University of Aberdeen
Professor Marcel Jaspars
Isolation and characterisation of marine natural products

Teaching Assistant
University of Aberdeen
Oct 1999 - Dec 1999

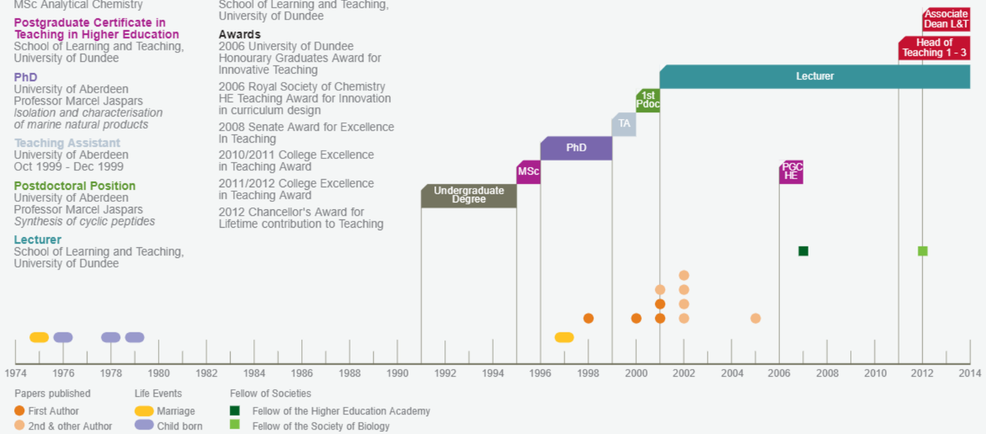
Postdoctoral Position
University of Aberdeen
Professor Marcel Jaspars
Synthesis of cyclic peptides

Lecturer
School of Learning and Teaching, University of Dundee

Head of Teaching Levels 1 to 3
School of Learning and Teaching, University of Dundee

Associate Dean, School of Learning and Teaching
School of Learning and Teaching, University of Dundee

Awards
2006 University of Dundee Honourary Graduates Award for Innovative Teaching
2006 Royal Society of Chemistry HE Teaching Award for Innovation in curriculum design
2008 Senate Award for Excellence in Teaching
2010/2011 College Excellence in Teaching Award
2011/2012 College Excellence in Teaching Award
2012 Chancellor's Award for Lifetime contribution to Teaching



Dr Robert Ford

College Secretary, College of Life Sciences

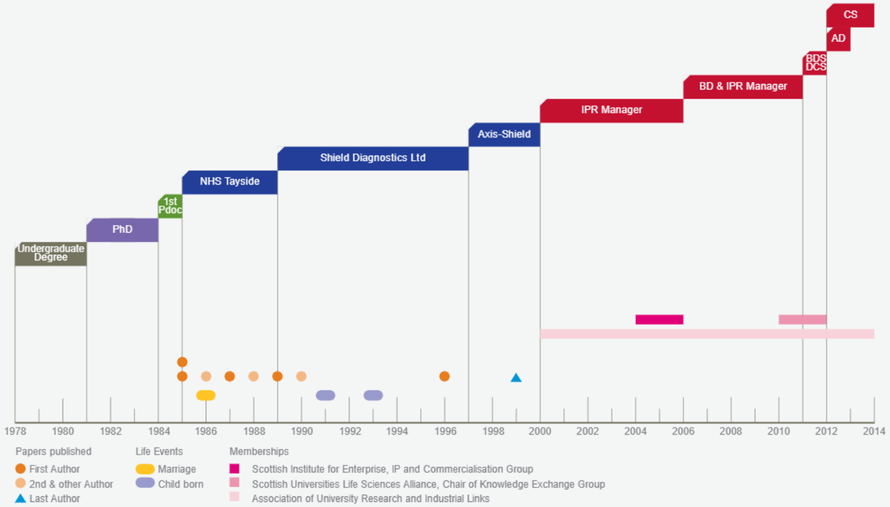
Don't specialise too early – leave your options open, do what you're interested in, see what opportunities arise and do everything to the best of your abilities.

I studied for my first degree in Biochemistry after being inspired by an open day at Cardiff University which opened up a whole new world to me. Whilst I was doing my degree I decided to do a PhD for no other reason than to prove to myself I could! I enjoyed research and bench work but primarily I didn't want to look back and regret not having done it. During my PhD, I realised that I wanted to get involved in the applied aspects of Science and see how basic research is translated. I first worked in the NHS on improving diagnoses and supporting doctors in their diagnosing and monitoring of patients. An opportunity came up in product development with a spin-out company from the University of Dundee. I was there for eleven years – initially developing new diagnostic tools and technology and then I moved more into business development and marketing.

Due to extensive travel commitments I left Axis-Shield for a position that whilst challenging allowed me to spend more time with my family. I now support academic colleagues in learning and teaching and research in their work at the University of Dundee so they can focus on the science, taking a lead on management, administration and financial aspects of the College of Life Sciences.

A Day in my Life

First thing in the morning I check my emails, which inevitably results in me re-prioritising my day! At work, I spend a significant amount of my time in meetings with the Head of College, Deans, Director of the MRC-PPU, PIs, managers of the various support services within the college and student and academic support services, to review progress and often to look at finding solutions to challenges that arise. I also spend time managing budgets and future planning of resources for the College. Additionally I work with colleagues on industrial collaborations, most notably the Division of Signal Transduction Therapy collaboration with the pharmaceutical industry which plays an important role in our knowledge exchange activities.



Undergraduate Degree
University College Cardiff, University of Wales
BSc (Hons) Biochemistry

PhD/Postdoctoral Position
University of Edinburgh
PhD Biochemistry
Professor George Boyd
and Dr Keith Suckling

NHS Tayside, Dundee
Clinical Biochemist

Shield Diagnostics Ltd
1989 - 1993 Project Leader,
Research and Development

1994 - 1997 Product Manager,
Sales and Marketing

Axis-Shield, Dundee
1997-1998 Cardiovascular Business
Unit Manager

1999 - 2000 Marketing Manager

Intellectual Property Rights Manager
Research and Innovation Services (RIS),
University of Dundee

Business Development Intellectual Property Rights Manager
RIS, University of Dundee

Business Development Manager and Deputy College Secretary
College of Life Sciences,
University of Dundee

Assistant Director
MRC Protein Phosphorylation
and Ubiquitylation

College Secretary
College of Life Sciences,
University of Dundee

Acknowledgements

© David Aitken

© Malcolm Finnie

This project has been made possible with the support of the College of Life Sciences Postdoctoral Association, The College of Life Sciences at University of Dundee and is funded by the Wellcome Trust and BBSRC.

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Design and production: Jackie Malcolm, Arc Visual Communications Ltd
Photographic Portraits: Janice Aitken
Copy: Zoe Venditozzi

Printed using FSC paper stock.

Carbonneutral: Certified papers for a greener footprint.

Dr Emma Compton and Dr Nicola Phillips, College of Life Sciences Postdoctoral Association

For many postdocs considering their future career the path ahead is opaque. There is little information about the possible options after a postdoc and whether one should follow the traditional PI track. Drawing inspiration from the Royal Society 'Mothers in Science' project and teaming up with Janice Aitken and Zoe Venditozzi, who we had worked with previously on the Portraits of Women in Science project, we have taken an in depth look at exactly how former postdocs, men and women alike, have progressed to where they are now. This project has been extremely interesting and informative for our own careers and we hope it will be helpful for others in a similar position. We are immensely grateful to those whose careers we have featured in this project and would like to thank Jackie, Janice, Zoe, David Aitken and Sarah Hussain without which it would never have happened.

Janice Aitken, Artist
Duncan of Jordanstone College of Art & Design (DJCAD)

We are extremely fortunate to work in a University where cross discipline collaboration is actively encouraged and I take advantage of the possibilities afforded by that philosophy at every opportunity.

When Emma Compton from the College of Life Sciences Postdoctoral Association approached me to work on this project I said yes immediately. This initially resulted in an exhibition of photographic portraits of scientists, many of which appear here. This publication and a website charting the careers of these inspirational individuals soon followed. It was a privilege and pleasure working as part of the team who created this work and I will be content if my contribution to the project can even partially reflect the intelligence, character and humour of the scientists whose stories are told in these pages.

Jackie Malcolm, Graphic Designer
Duncan of Jordanstone College of Art & Design (DJCAD) and Arc Visual Communications Ltd

Being involved in this project has been an exciting challenge, charting some of the most prestigious careers in science today.

It is inspiring to be able to see the various ways in which scientists, both men and women, manage to develop their careers, whilst balancing family life. Due to the wide variety of career pathways, this publication has been an exciting challenge and it has truly been a collaborative process working with Janice, Emma and Nicola.

I sincerely hope you enjoy being inspired, as I have been, through its production.

Zoe Venditozzi
University of Dundee

As a writer, I'm perpetually fascinated by looking into other people's lives, so I jumped at the chance to get to know a little bit more about the world of being a scientist. I was brought on board to interview all the participants in this project to help to differentiate between the different types of career that an early stage scientist might pursue.

Through the course of the interviews two things quickly became apparent to me. Firstly, everyone I spoke to was incredibly passionate about their work, often going above and beyond their remit. I was really struck by the levels of dedication and also perseverance necessary to make a successful career.

Secondly, I was fascinated to discover that there are so many options open to scientists. However, it seems that sometimes these options aren't immediately obvious and that careers often develop in unexpected and surprising ways.

This project has been inspiring and eye-opening and I hope it is of use to those interested in a career in Science.

'Don't be afraid of hard work.

Nothing worthwhile comes easily.

Don't let others discourage you or tell you that you can't do it.

In my day I was told women didn't go into chemistry.

I saw no reason why we couldn't.'

Gertrude B Elion, Biochemist, Nobel Laureate (1918-1999)